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Web 2.0 in Higher Education: Collaborative Learning

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ABSTRACT

Web 2.0 has created an open-context that promotes collaborative learning by allowing interaction, participation, and transaction. Introducing Web 2.0 into curriculum will enhance students' learning experiences in higher education while serving the pedagogical objectives pertaining to collaborative learning. Google Docs & Spreadsheets (GDS), a Web 2.0 technology, was introduced as a collaborative tool to improve team-based learning in both undergraduate and graduate classes. This research paper plans to adopt hermeneutics circle approach to provide insights on how to facilitate and enhance collaborative learning in a team-oriented environment.

Keywords

Web 2.0, Google Docs, Collaborative Learning

INTRODUCTION

This paper focuses on using Web 2.0 in higher education (1) to facilitate knowledge sharing and knowledge transfer in team-based learning and (2) to enhance collaborative learning that emphasizes on active learning and knowledge construction, cooperative and teamwork in learning and learning through problem solving (Alavi, 1994). By allowing users to add values to the content, Web 2.0 technology harnesses collective intelligence to enable knowledge construction, knowledge sharing and knowledge transfer (Rollet et al., 2007). In this respect, the research question is "how to use Google Docs & Spreadsheet (GDS), a Web 2.0 technology, to facilitate and enhance collaborative learning in a team-oriented environment? ".

LITERATURE REVIEW

Collaborative Learning

Collaborative learning embodies social processes involving a small group of students who work together in a problem solving process for the purpose of promoting learning through collaborative activities that encourage individuals to exercise, verify, solidify, and improve their mental models during discussions and information sharing (Alavi, 1994). In other words, it is a learner-centered and team oriented approach with the assumption that learning is an outcome of interaction among team members (Shen et al., 2006) who exchange ideas and share experiences to attain group solutions, leading to knowledge construction (Michinov et al., 2008). This approach is parallel to the cooperative model, which proposes that learning occurs most successfully when small groups of students share information and create knowledge during group discussion (Alexander, 2006). Alavi (1994) postulates that collaborative learning is based on the three attributes of effective learning:

- (1) *active learning and knowledge construction* :
Learning is best attained by engaging students in constructing knowledge through the act of acquiring, generating, analyzing, manipulating, and structuring information.
- (2) *cooperation and teamwork in learning* :
There are social processes that monitor individual thinking, belief, and opinion while challenging individual viewpoints by exposing the individual to alternative viewpoints.
- (3) *learning via problem solving*:
Learning is accomplished in problem-solving situation in which mental models are tested, extended, and refined until they are effective and reliable in solving that problem.

Web 2.0 in Education

Musser & O'Reilly (2007) defined Web 2.0 as a "*set of social, economic, and technology trends that collectively form the basis for the next generation of Internet – a more mature, distinctive medium characterized by user participation, openness, and network effects*". Web 2.0 does not really constitute any new technical standards but it indicates new ways of using Internet as a platform for interactive applications (McLean et al., 2007). Musser & O'Reilly (2007) further posited that Web 2.0 technology "*harnesses collective intelligence through an architecture of participation*", which is attained by "*actively*

involving users both explicitly and implicitly, minimizing the barriers to product adoption and use, and by designing products that encourage viral network-driven growth". In short, the architecture of participation establishes a user-focus platform that maximizes the value of user involvement by allowing users to add value (e.g.: creating new content) and thereby enrich the web.

With the available open platform in support of users' interaction and participation, Web 2.0 enables collaborative learning as well as knowledge dissemination and sharing to add a new learning dimension in traditional classroom settings and supplement traditional teaching methods. In particular, Web 2.0 supports "anytime, anyplace" learning as compared to traditional teaching methods; and Web 2.0 may produce powerful learning experience when it serves as cognitive reflection and amplification tools ("mind tools") that assist the users establish meaning through the act of self-design of knowledge databases (Boulos, 2006). Therefore, Web 2.0 facilitates all the attributes in effective learning – (1) *active learning and knowledge construction* can be achieved by adding new content and constructing new meanings to enrich the web; (2) *cooperation and teamwork in learning* can be accomplished through active participation and online collaboration in an open platform; and (3) *learning via problem solving* can be attained by using Web 2.0 as mind tools to reflect upon one's cognition and by collaborating with other individuals who bring alternative views .

Google Docs & Spreadsheet (GDS)

Google Docs is a Web 2.0 application developed by Google. Launched in 2006, this application contains word processing, spreadsheet, and presentations. This application allows users in different locations to collaboratively edit the same document simultaneously. Built on AJAX, Google Docs can be integrated with other tools through the use of application programming interfaces (APIs) that are accessible to advanced end-users (Craig, 2007). Google Docs application incorporate some features found in traditional office applications as well as features that support collaborative work (e.g., archive history). In specific, the editing features include undo, redo, cut, copy, and paste whereas the style or font editing features involve font, margins, alignment, bullets, and highlighting. Users are allowed to insert images, links, comments, tables, bookmarks, page breaks, horizontal lines, and special characters. To share a document and collaborate online, user can choose the collaborator by selecting "Collaborator" radio button or the user can choose viewer by selecting the "Viewer" radio button. Archival documents are listed so that users can restore previous draft by clicking on "Revision".

RESEARCH METHODOLOGY

Undergraduate and graduate students who took Computer Information Systems classes (CIS) were asked to work in group research project that entailed case studies and research papers. Instructor mandated that students used Google Docs & Spreadsheet (GDS) to collaborate with their group members. Every group must submit an electronic copy of document in Google Docs. Upon completing group project, students provided feedbacks in text format. There are about 216 students who gave feedbacks. Hermeneutic circle approach is used to interpret students' feedbacks written in text, which, according to Ricœur, "*text is not only spoken and written discourse but also human action*"; and given that, all human experience can be "*interpreted and understood as text*" (Hiraki, 1992). The principle of the hermeneutic circle proposes "*that we come to understand a complex whole from preconceptions about the meanings of its parts and their interrelationships*" (Klein and Myers, 1999). In this regard, the sentences written in the feedbacks as parts serve to shape an understanding on collaborative learning in a team-oriented environment as a whole; and the global understanding of collaborative learning improves the understanding on each part.

CONCLUSION

This is a working paper in progress. Data analysis will be conducted later on to shed light on the students' requirements and perspectives on Google Docs & Spreadsheets (GDS) and to suggest how to use web 2.0 technology to enhance and facilitate collaborative learning.

REFERENCES

1. Alavi, M. (1994) Computer-Mediated Collaborative Learning: An Empirical Evaluation, *MIS Quarterly*, 18, 2, 159 – 174.
2. Alexander, P. M. (2006) Virtual Teamwork in Very Large Undergraduate Classes, *Computer & Education*, 47, 127 – 147.
3. Boulos, M. N. K., Maramba, I., and Wheeler S. (2006) Wikis, Blogs and Podcasts: a New Generation of Web-Based Tools for Virtual Collaborative Clinical Practice and Education, *BMC Medical Education*, 6, 41, 1472 – 1480.

4. Craig, E. M. (2007) Changing Paradigms: Managed Learning Environments and Web 2.0, *Campus-Wide Information Systems*, 24, 3, 152 – 161.
5. Hiraki, A. (1992) Tradition, Rationality, and Power in Introductory Nursing Textbooks: A Critical Hermeneutics Study, *Advanced Nursing Science*, 14, 3, 1 – 12.
6. Klein, H. K. and Myers M. D. (1999) A Set of Principles for Conducting and Evaluating Interpretive Field Studies in Information Systems, *MIS Quarterly*, 23, 1, 67 – 93.
7. McLean, R., Richards, B. H., and Wardman, J. I. (2007) The Effect of Web 2.0 on the Future of Medical Practice and Education: Darwinian Evolution or Folksonomic Revolution?, *The Medical Journal of Australia*, 187, 3, 174- 177.
8. Michinov, N. and Michinov, E. (2008) Face-to-face Contact at the Midpoint of an Online Collaboration: Its Impact on the Patterns of Participation, Interaction, Affect, and Behavior over Time, *Computers & Education*, 50, 1540-1557.
9. Musser, J. and O'reilly, T. (2007) Web 2.0 Principles and Best Practices, O'reilly Media, San Francisco.
10. Rollett, H., Lux M., Strohmaier, M., Dosinger, G., and Tochtermann, K. (2007) The Web 2.0 Way of Learning with Technologies, *International Journal of Learning Technology*, 3, 1, 87-107.
11. Shen, J., Hiltz, S. R., and Bieber, M. (2006) Collaborative Online Examinations: Impacts on Interaction, Learning, and Student Satisfaction, *IEEE Transactions on Systems, Man, and Cybernetics—Part A: Systems and Humans*, 36, 6, 1045 – 1053.
12. Virkus, S. (2008) Use of Web 2.0 Technologies in LIS Education: Experiences at Tallinn University, Estonia, *Program: Electronic Library and Information Systems*, 42, 3, 262-274.